

any art or science whatever; we must collect the facts, and the things to which the facts happen, in each subject, and provide as large a supply of these as possible." He then proceeds to say that "we are not to look at once at all this collected mass, but to consider small and definite portions" . . . "And thus it is the office of observation to supply principles in each subject; for instance, astronomical observation supplies the principles of astronomical science. For the phenomena being properly assumed, the astronomical demonstrations were from these discovered. And the same applies to every art and science. So that if we take the facts (*τὰ ὑπάρχοντα*) belonging to each subject, it is *our* task to mark out clearly the course of the demonstrations. For if *in our natural history* (*κατὰ τὴν ἱστορίαν*) we have omitted nothing of the facts and properties which belong to the subject, we shall learn what we can demonstrate and what we cannot."

These facts, *τὰ ὑπάρχοντα*, he, at other times, includes in the term *sensation*. Thus, he says,¹² "It is obvious that if any sensation is wanting, there must be also some knowledge wanting which we are thus prevented from having, since we arrive at knowledge either by induction or by demonstration. Demonstration proceeds from universal propositions, Induction from particulars. But we cannot have universal theoretical propositions except from induction; and we cannot make inductions without having sensation; for sensation has to do with particulars."

In another place,¹³ after stating that principles must be prior to, and better known than conclusions, he distinguishes such principles into absolutely prior, and prior relative to us: "The prior principles, relative to us, are those which are nearer to the sensation; but the principles absolutely prior are those which are more remote from the sensation. The most general principles are the more remote, the more particular are nearer. The general principles which are necessary to knowledge are *axioms*."

We may add to these passages, that in which he gives an account of the way in which Leucippus was led to the doctrine of atoms. After describing the opinions of some earlier philosophers, he says,¹⁴ "Thus, proceeding in violation of sensation, and disregarding it, because, as they held, they must follow reason, some came to the conclusion that the universe was one, and infinite, and at rest. As it appeared, however, that though this ought to be by reasoning, it

¹² Anal. Post. i. 18.

¹³ Ib. i. 2.

¹⁴ Do Gen. et Cor. i. 8.